COVID-19
Critical Indicators

May 27, 2023

TN Department of Health

Introduction

The COVID-19 Critical Indicator Report is published weekly by the Tennessee Department of Health (TDH) to highlight critical data trends at the county and state level. Community transmission and disease burden metrics published in this report are subject to change and will be reevaluated periodically.

TN COVID-19 at a Glance

2,545,300
Total Number of COVID-19 Cases

29,587
Total Number of COVID-19 Deaths

Key Definitions

Below are definitions. In addition to these definitions, each visualization in this report is explained in further detail in the technical notes (see):

- In TN, a COVID-19 case is counted in the daily case count, demographics, and outcomes, if it classified as a confirmed or probable case. Please see the COVID-19 case definition found at https://www.tn.gov/content/dam/tn/health/documents/cedep/novel-coronavirus/COVID-Case-Definition.pdf.

- A **confirmed case** is someone who tested positive (via PCR test) for the virus that casues COVID-19 (SARS-CoV-2).
- A **probable case** is someone who tested positive by another type of test or may not have been tested at all, but has an illness consistent with COVID-19, and may have other risk factors. (e.g. contact with a confirmed case.)
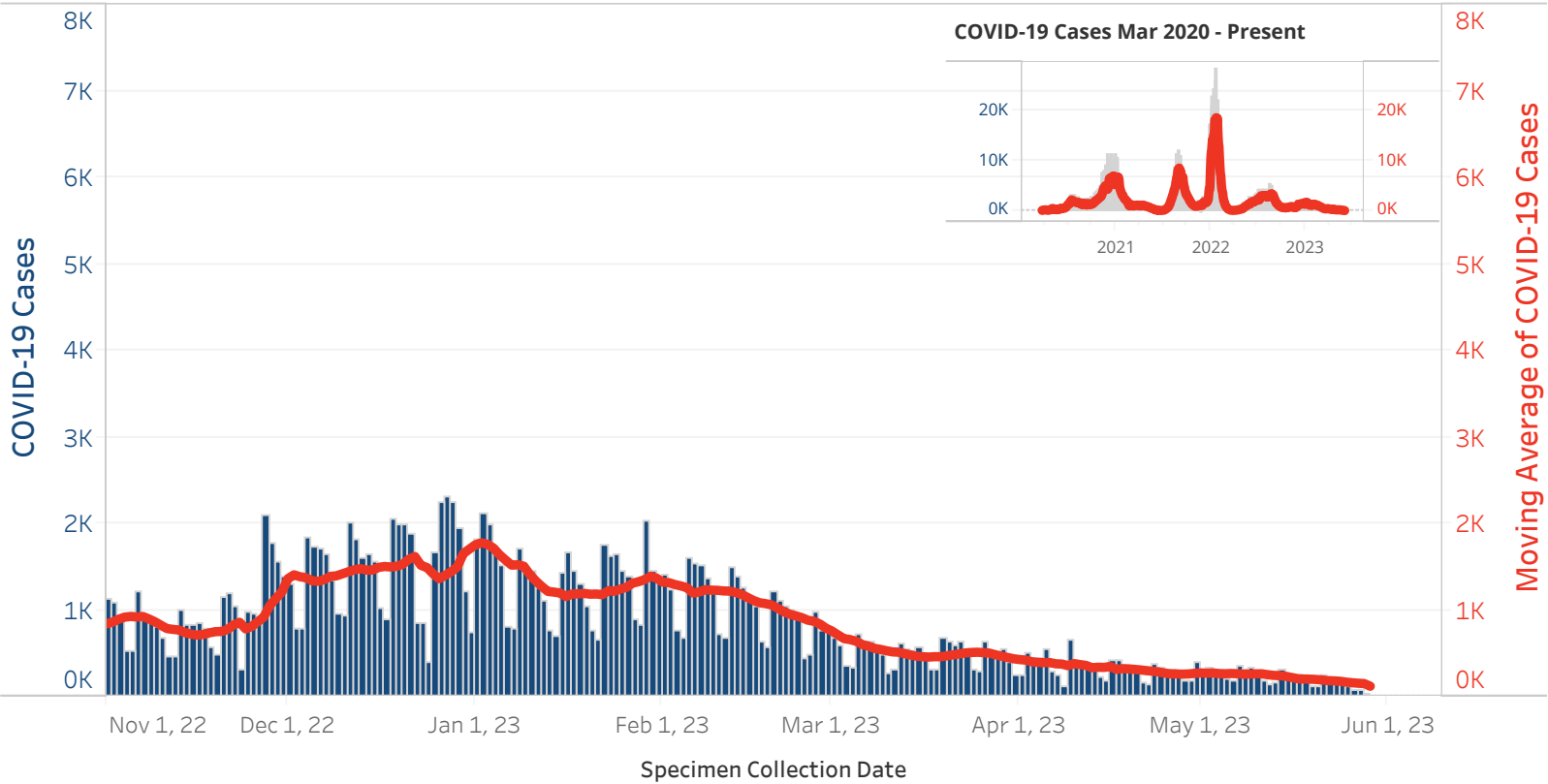 For example:
    - If a person is a close contact of a COVID-19 case and has a clinically-compatible illness, this person meets the criteria to be a probable case.

- The **specimen collection date** is the date someone's COVID-19 lab sample was collected. Due to lab turnaround time there may be delays between when a specimen is collected and a confirmed case is reported to the public. Unless otherwise stated, visualizations in this report use specimen collection date as it more accurately indicates when a patient was sick (and not when their case was reported to the public).

TN COVID-19 Trends: Cases, Hospitalizations, and Deaths

COVID-19 Cases by Specimen Collection Date[1]

Number/Rate of Hospitalizations[13]

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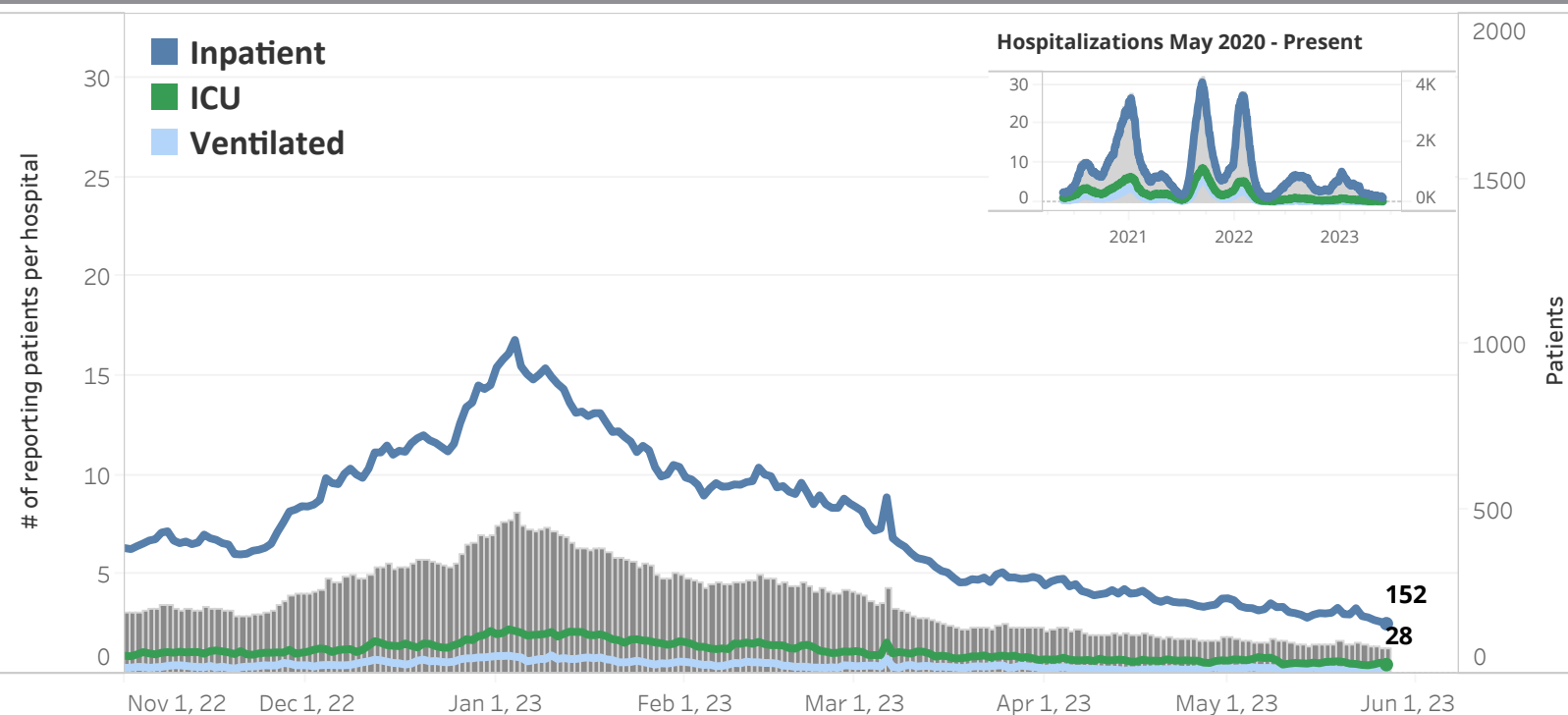
Number of Deaths per Day (by date of death)[8]

On May 27, 2023, the total number of confirmed COVID-19 deaths was 29,587 (21,093 confirmed and 8,494 probable). Below are the number of COVID-19 deaths by the date of death. The red line represents the 4 day running average number of deaths.
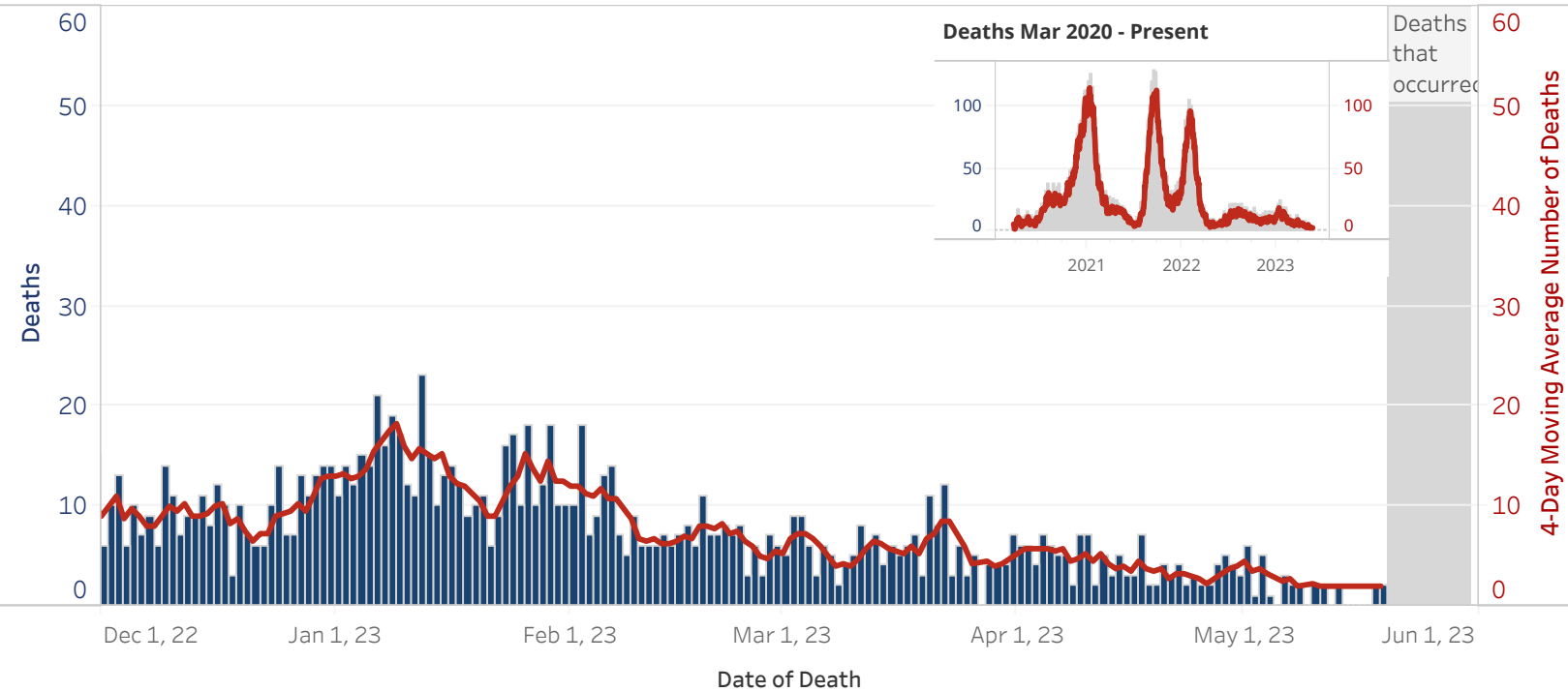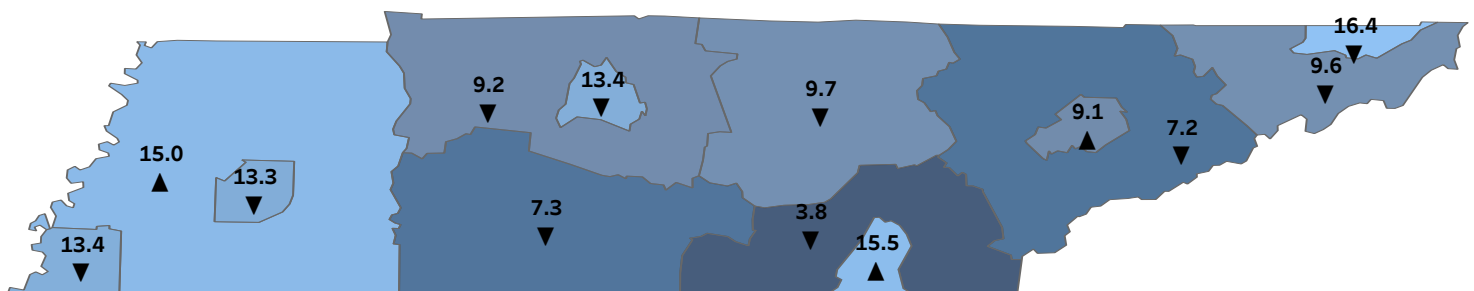

Case Fatality Rate:
1.2%
(29,587/2,545,800)

30-Day Case Fatality Rate:
0.46%
(28/6,023)

Positive Tests per 100,000 Person by Public Health Region (over last 7 days)[4]

The map below shows the number of new positive tests in the last 7 days per 100,000 persons. The arrow indicators represent the trend (up or down) as compared to the week prior. For the week of May 27, 2023, the highest rate of positive tests was seen in the Blountville-Sullivan Metro. Additionally, 10 of the 13 public health regions saw a decrease in the number of positive cases compared to the week prior.

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TN COVID-19 Variants in Circulation[5]

Below is a table summarizing COVID-19 variant cases reported to the Tennessee Department of Health in the last six months. TDH continues to monitor trends in variants beyond the six most commonly identified variants listed below. Because sequencing is not performed by all laboratories, these data are a convenience sample and not indicative of the true prevalence of variants. To learn more about COVID-19 variants, please see the SARS-CoV-2 Variant Classifications and Definitions published by the CDC: https://www.cdc.gov/coronavirus/2019-ncov/variants/variant-classifications.html

Additional data on variant proportions nationally and by state are available from the CDC at: https://covid.cdc.gov/covid-data-tracker/#variant-proportions

TN Region	XBB.1.5-Omicron	BA.5- Omicron	BQ.1.1-Omicron	BQ.1- Omicron	XBB- Omicron	BF.7- Omicron
Blountville-Sullivan Region	3	1	1	0	0	0
Chattanooga-Hamilton Region	2	1	7	0	0	0
East Tennessee Region	26	16	9	8	0	3
Jackson-Madison Region	3	3	4	1	0	0
Knoxville-Knox Region	13	10	6	1	1	1
Memphis-Shelby Region	38	51	58	3	5	0
Mid-Cumberland Region	176	138	85	21	15	15
Nashville-Davidson Region	201	128	98	11	19	5
Northeast Region	14	10	7	2	1	1
South Central Region	11	22	16	3	3	5
Southeast Region	6	9	1	0	0	0
Upper Cumberland Region	6	5	7	0	0	0
West Tennessee Region	11	13	7	3	0	0
Grand Total	510	407	306	53	44	30

Vaccinations by Age Group in TN
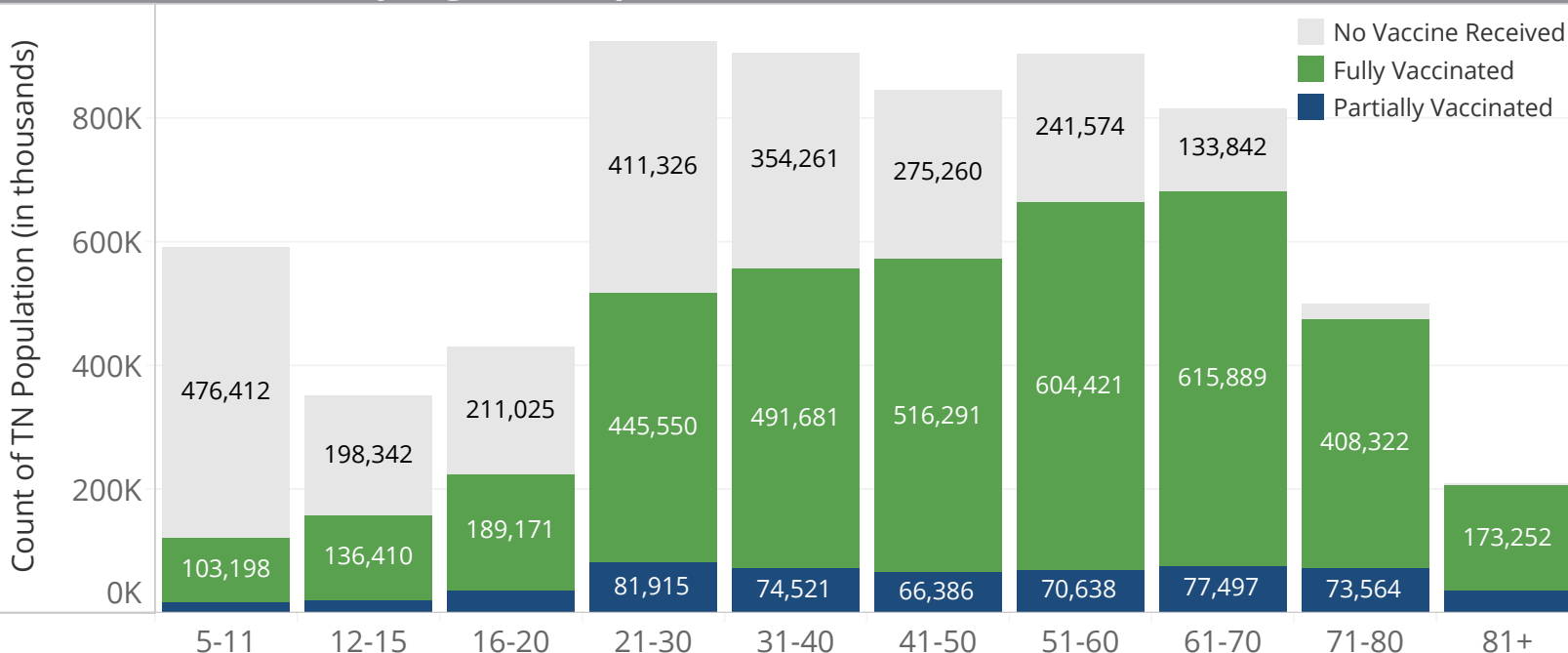
The plot above illustrates the percentage of people in Tennessee vaccinated with at least 1 dose by age group and the number of people in Tennessee who are partially vaccinated, fully vaccinated, and not vaccinated by age group.

Number of Vaccine Doses Administered/Reported to TennIIS
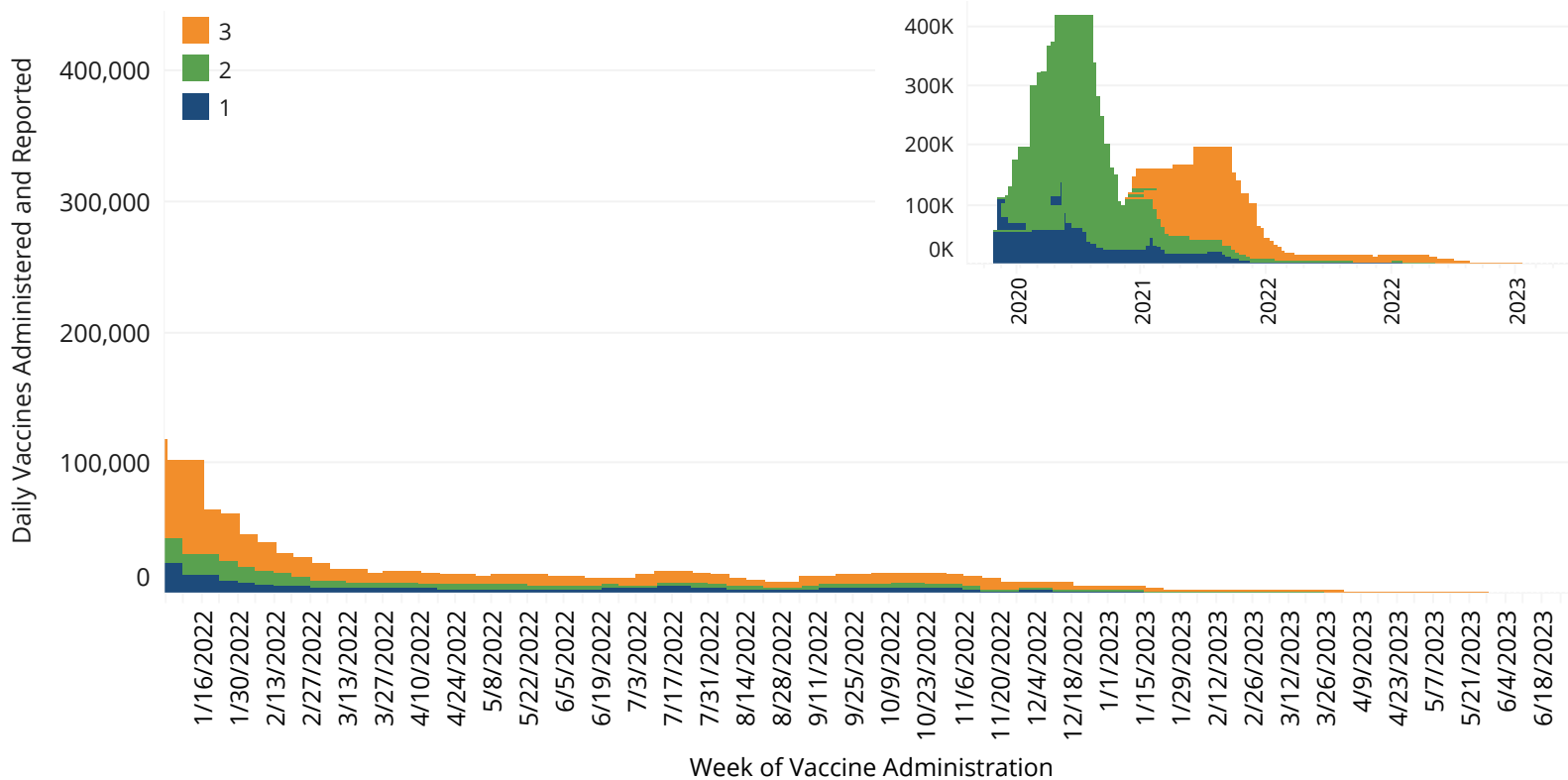
The plot above illustrates the total number of COVID-19 vaccine doses administered and reported to Tennessee Immunization Information System (TennIIS) every week and also shows which dose (1st, 2nd, or booster/additional dose) was administered.

Percent Fully Vaccinated by County Population

Reported % of County Population With Series Completion: 2 doses of Pfizer / Moderna OR 1 dose of Janssen
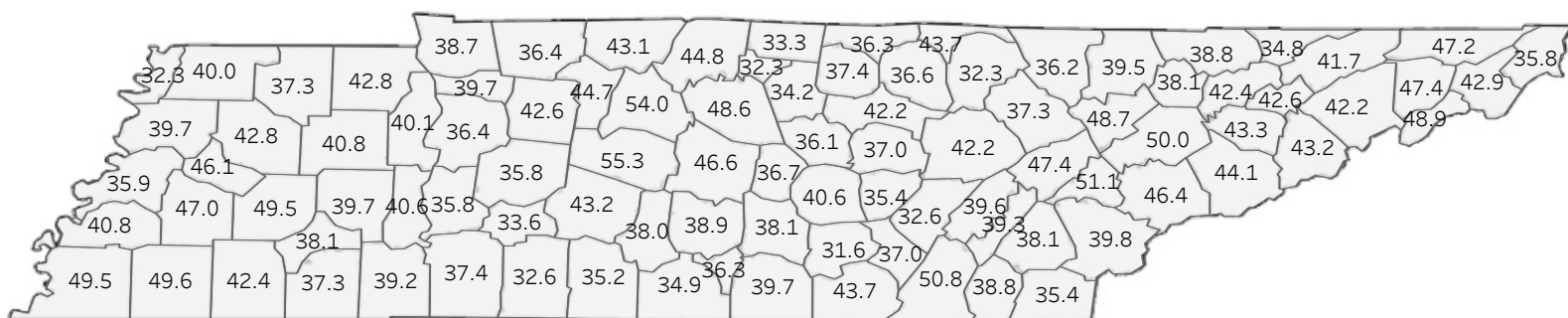
The map above illustrates the reported percentage of county population that has completed a series of 2 doses of Pfizer/Moderna OR 1 dose of Janssen.

Note: Calculations are based on reported demographics to the state immunization information system (TennIIS) and 2020 population data. Resulting percentages may be over 100 if the reported number of vaccinated residents based on county exceeds the number of residents in the demographic category from 2020.

7 Day Rolling Average of COVID-19 Cases by Vaccination Status

Not Fully Vaccinated
Fully Vaccinated

Illness occurring during this time may not yet be reported
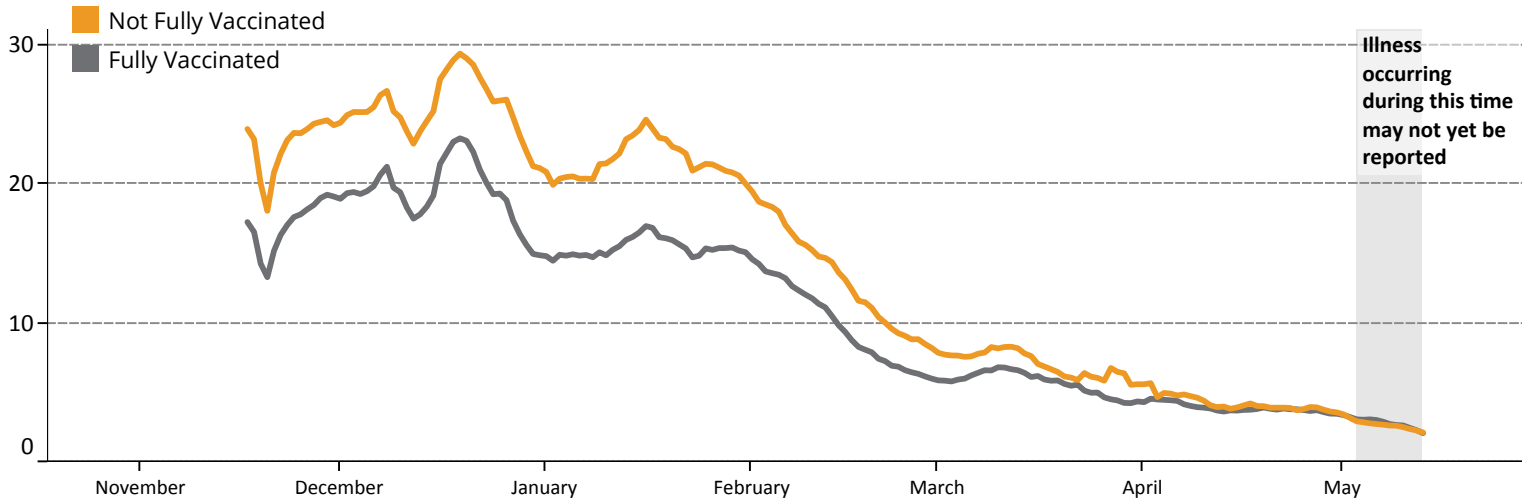
7 Day Rolling Average of COVID-19 Hospitalizations by Vaccination Status

The plot below shows the 7 day rolling average rate of COVID-19 hospitalizations (per 100,000 persons) by vaccination status.

Not Fully Vaccinated
Fully Vaccinated

Hospitalizations occuring during this time may not yet be reported
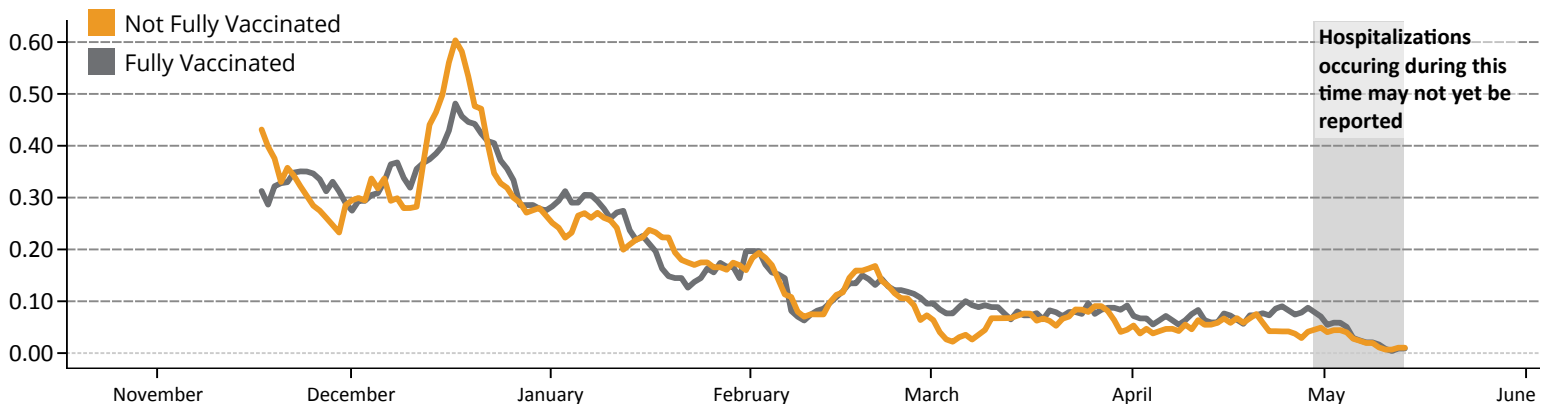
7 Day Rolling Average of COVID-19 Deaths by Vaccination Status

The plot below shows the 7 day rolling average rate of COVID-19 deaths (per 100,000 persons) by vaccination status.

Not Fully Vaccinated
Fully Vaccinated

Deaths occuring during this time may not yet be reported

7 Day Running Average of New Cases in Metropolitan Public Health Regions7

Legend:
- Blountville/Sullivan County
- Chattanooga/Hamilton County
- Jackson/Madison County
- Knoxville/Knox County
- Memphis/Shelby County
- Nashville/Davidson County

The plot above illustrates the 7 day running average of new COVID-19 cases (based on the date of public report) for the six metropolitan public health regions. The Nashville/Davidson 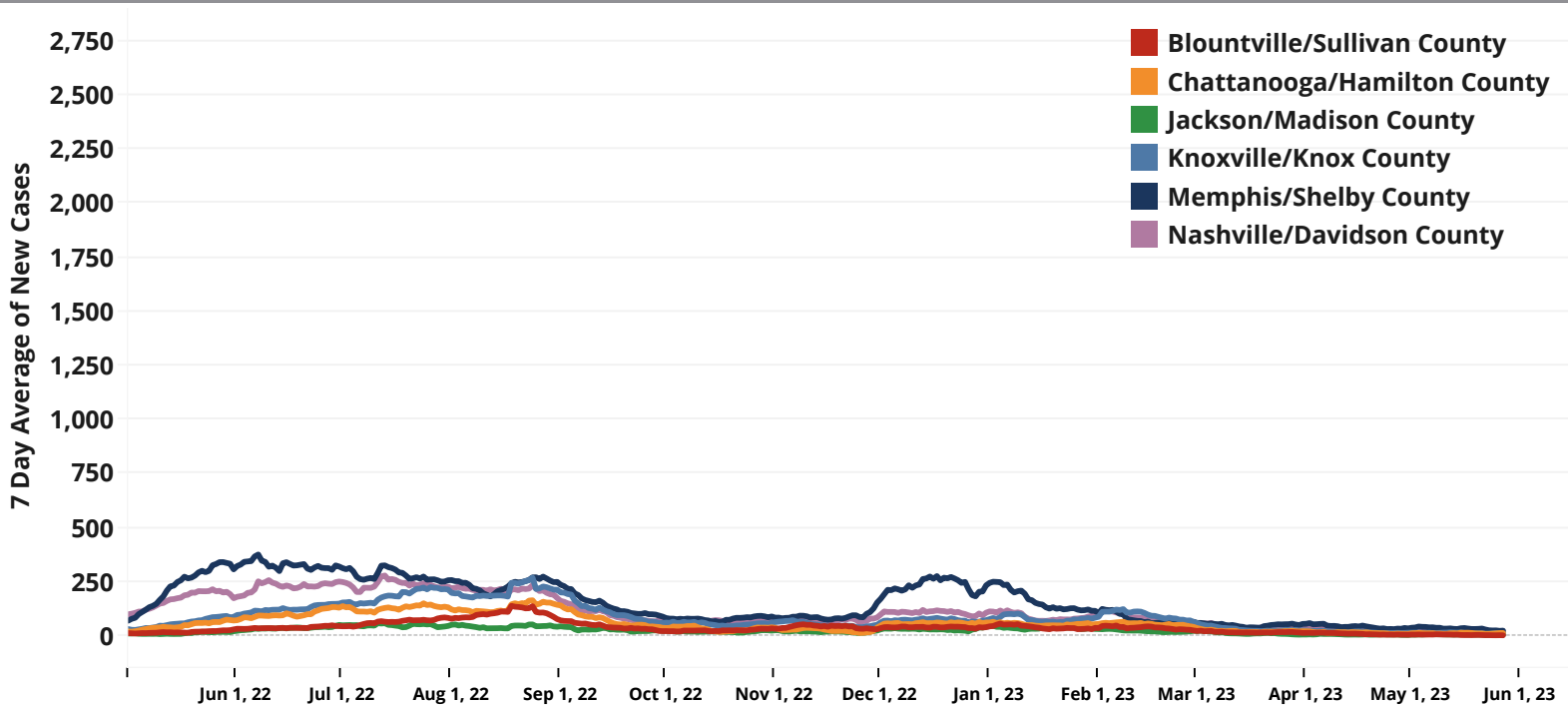and Memphis/Shelby metropolitan areas have consistently reported higher counts of COVID-19 cases compared to the other four metropolitan areas since the outbreak began.

7 Day Running Average of New Cases in Rural Public Health Regions7
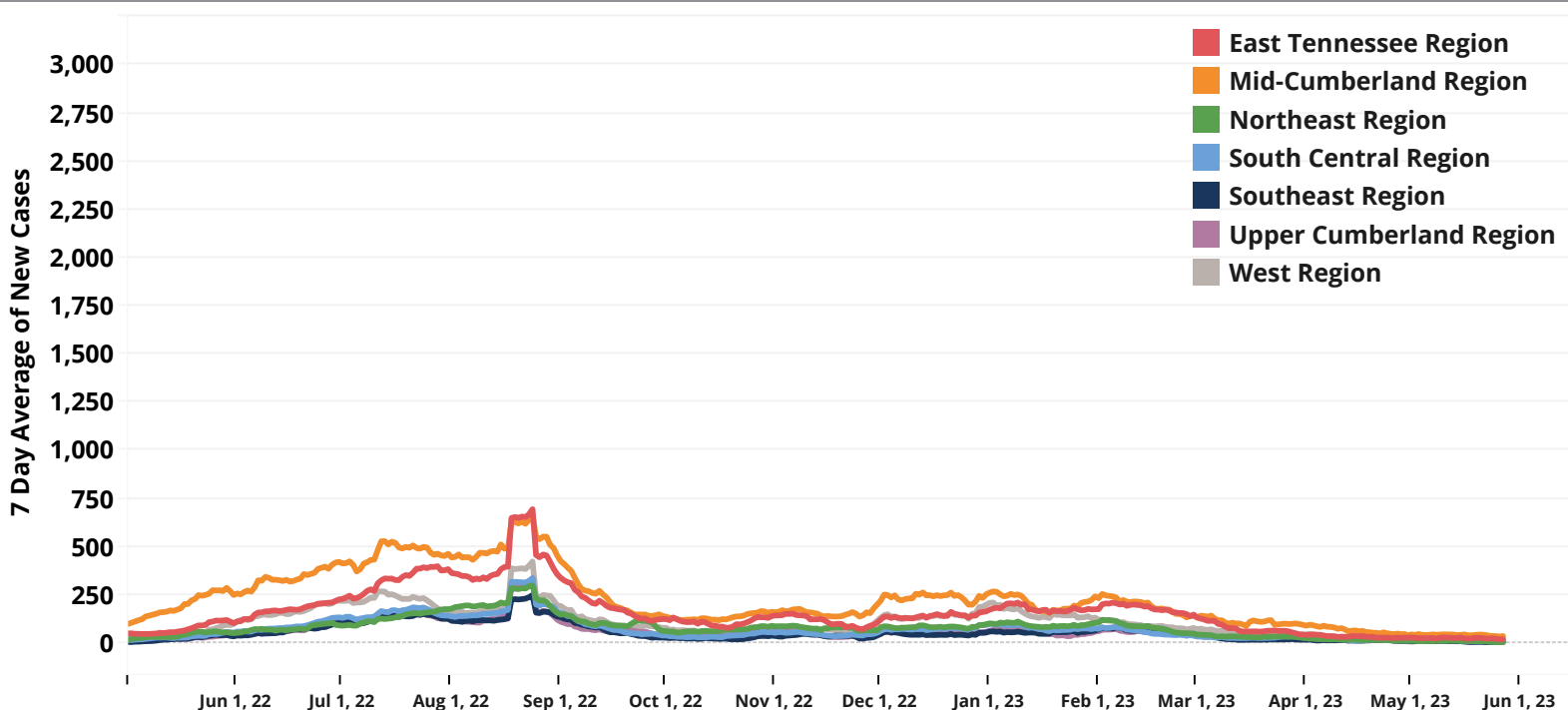
Legend:
- East Tennessee Region
- Mid-Cumberland Region
- Northeast Region
- South Central Region
- Southeast Region
- Upper Cumberland Region
- West Region

The plot above illustrates the 7 day running average of new COVID-19 cases (based on the date of public report) for the seven rural public health regions.

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COVID-19 Active Cluster Monitoring Table[9]

The table below shows the number active COVID-19 clusters that are currently being monitored by region and cluster type. To learn more cluster and cluster types, please reference the endnotes on pages 13-14.

Facility Type	CHR	ETR	JMR	KKR	MCR	NDR	SCR	SER	UCR	WTR	Total
Assisted Care Living Facility				2	2		1	1	1		7
Nursing Home	2	5	1		7	2	4	3	1	1	26
Other facility						2					2
Total	2	5	1	2	9	4	5	4	2	1	35

For more information on the metro and regional health departments, please **click here** or see page 13.

COVID-19 Confirmed Clusters by Week[10]

The visualization below shows the number of new clusters identified in Tennessee each week.
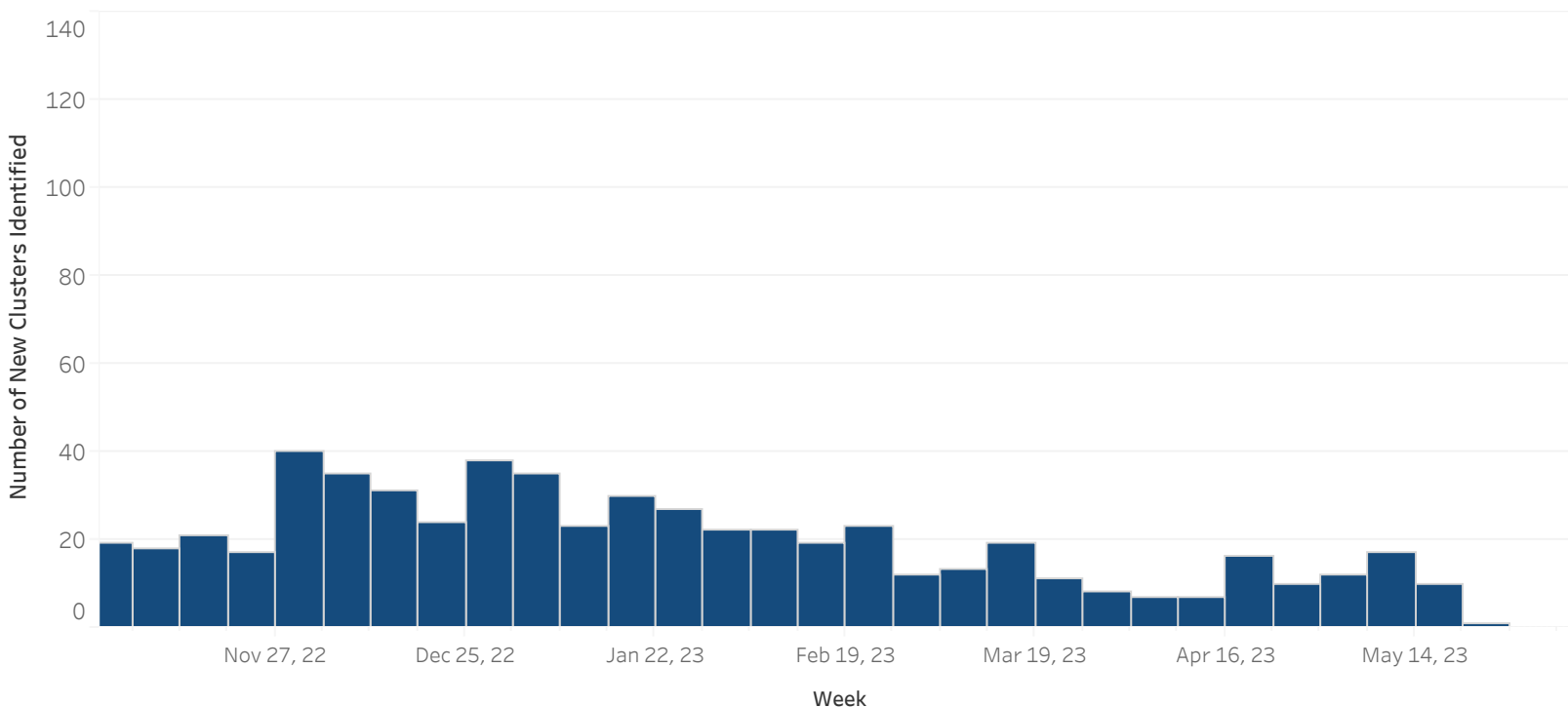
Trends in COVID-19 Symptoms in TN

The following section will visualize the trends in COVID-19 symptoms based on data collected through TN's syndromic surveillance system, ESSENCE. ESSENCE tracks patient chief complaints and discharge diagnoses from 95 emergency departments across the state. The data are typically received from participating EDs within 24 hours of a patient encounter. These data are used to get pre-diagnostic estimates of health conditions (like COVID-19) being reported from emergency departments.

Syndromic Surveillance (Emergency Room) Data[11]
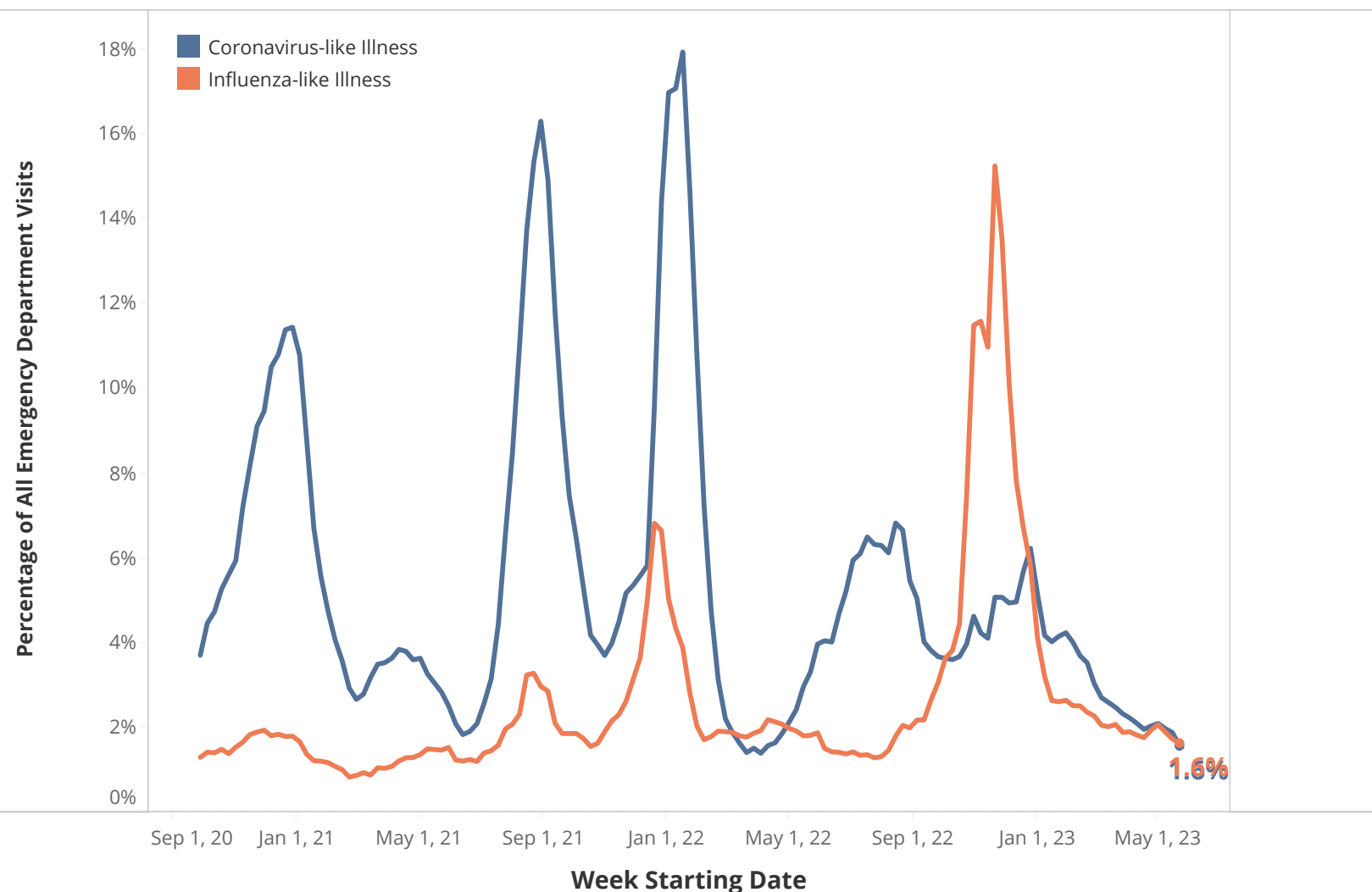
Cornavirus like illness (CLI) is defined as symptom terms, free text, or discharge diagnoses specified by CDC that are likely to be related to illness caused by the 2019 novel Coronavirus. The visits counted within these criteria will contain a percentage illnesses caused by conditions other than novel coronavirus infection. The visits counted within these criteria will contain a percentage illnesses caused by conditions other than novel corona virus infection. These results should be considered preliminary in nature and are not all confirmed diagnoses of disease.

Influenza like illness (ILI) is defined by terms, free text, or discharge diagnoses that are likely to be related to illness caused by seasonal influenza. The visits counted within these criteria will contain a percentage illnesses caused by conditions other than influenza infection. These results should be considered preliminary in nature and are not all confirmed diagnoses of disease.

Hospital Utilization and Confirmed COVID Hospitalizations in TN[13]

On May 27, 2023, 1.4% (124/8,949) of floor bed hospitalizations in Tennessee were COVID-19 patients.

Total Bed Capacity: 12,344

Non-COVID Hospitalizations

COVID Hospitalizations

8,949

124

Floor Beds in Use

Jun 1, 20   Oct 1, 20   Feb 1, 21   Jun 1, 21   Oct 1, 21   Feb 1, 22   Jun 1, 22   Oct 1, 22   Feb 1, 23   Jun 1, 23
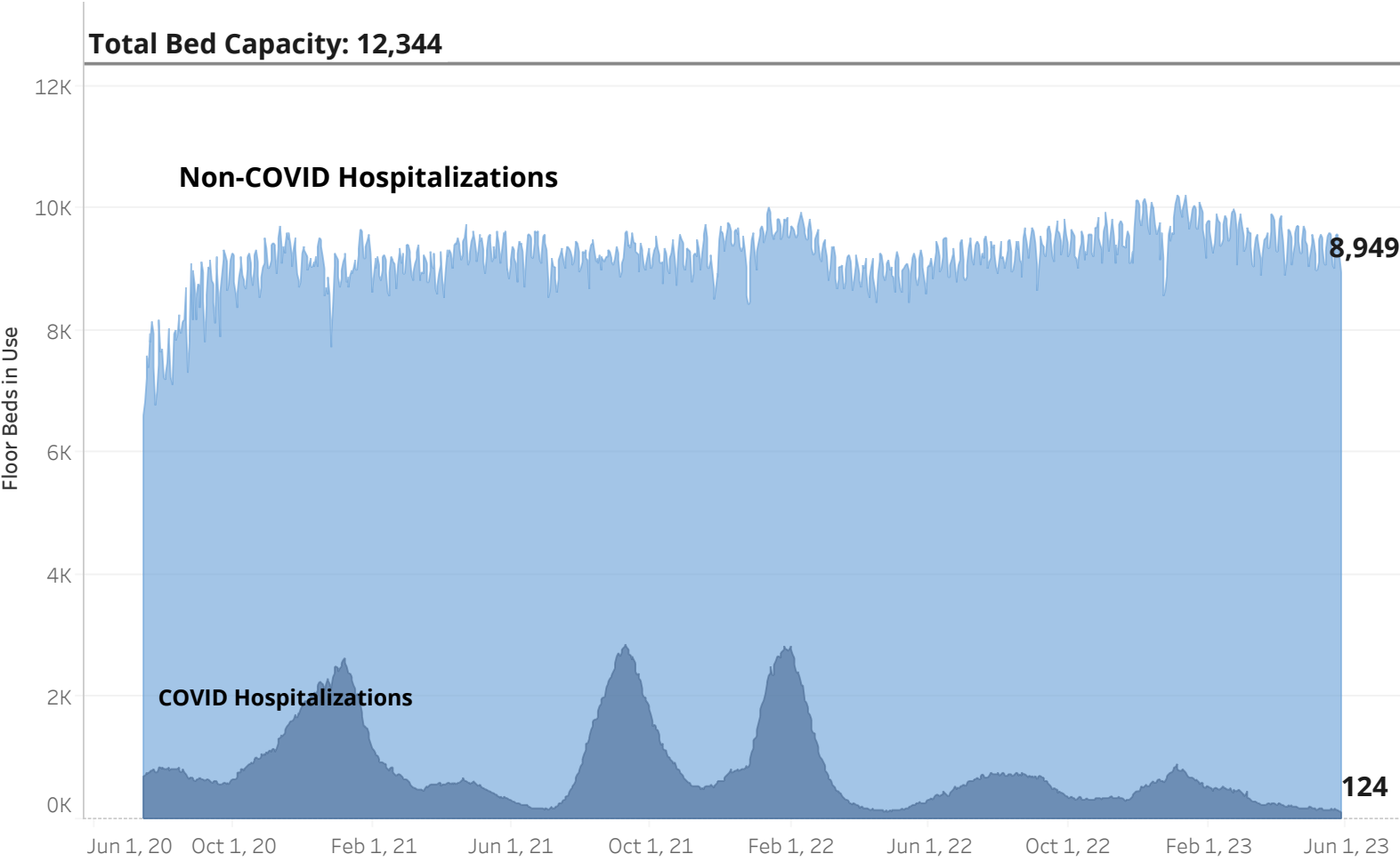
Quick Glance at Hospital Bed & Ventilator Availability[13]

Below is a brief snapshot of the currently available floor beds, ICU beds and ventilators across TN.

13%
1,612/12,172

Available Floor Beds

15%
332/2,181
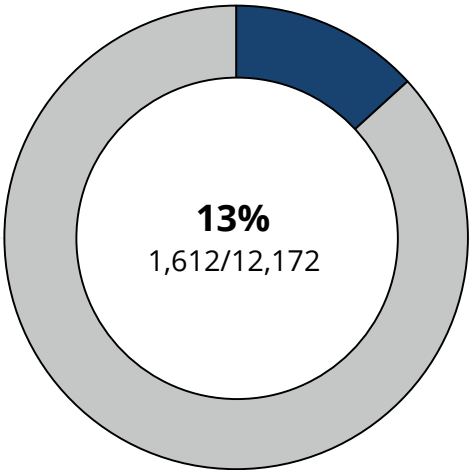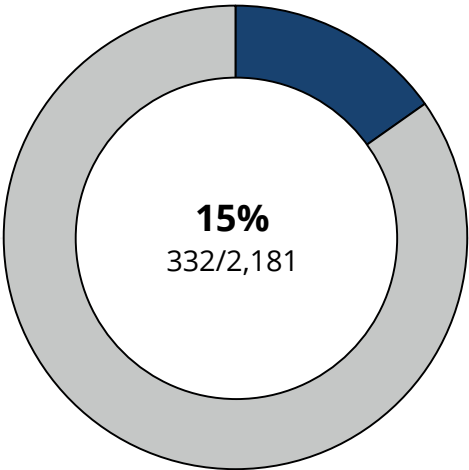
Available ICU Beds

Technical Notes

1. Epidemic Curve for COVID-19 Cases by Specimen Collection Date (page 2)

The visualization on page 2 shows the daily new COVID-19 cases (blue bars) and 7-day moving average of new cases (red line). A seven day moving average is the average of one data point and the six preceding data points. Looking at the moving average helps to understand trends and account for fluctuations in the data.

Are probable cases included in the Epidemic Curve?
Probable cases are included in the epidemic curve in this report. For the probable cases where specimen collection date is not available, the date the patient's illness or symptoms began is used.

Can I recreate this with TDH publicly available data?
Not exactly. The public downloadable datasets (**Daily Case Information**) present COVID-19 case counts based on the day they were publicly reported, not specimen collection date. However, using the column New_Cases one can create a similar visualization. The primary difference between the visualization using the public dataset method and the one in this report would be that the trends seen in this report should align with trends seen roughly 2-5 days later in the public dataset visualization. Again, this would be because of the 2-5 day lag between specimen collection date and public report date.

2. Number of Deaths per Day (by date of death) (page 3)

The visualizations on page 7 show the number of COVID-19 deaths by date of death (blue bars) and the 4-day moving average of the number of deaths. A four day moving average is the average of one data point and the three preceding data points. Looking at the moving average helps to understand trends and account for fluctuations in the data.

What is a probable death?
A probable COVID-19 death is if a person dies and the health care provider that signed their death certificate determined that COVID-19 disease was their cause of death or a significant condition contributing to death, then the person meets the probable case criteria and would be considered a probable death.

Is date of the death the same day it is publicly reported?
No, similarly to specimen collection date, the date of death frequently occurs 2-5 days before the death is reported to the public due to lag time in reporting. Therefore, the most recent day's data may not be complete.

How can I calculate the Case Fatality Rate? What about the 30-Day Case Fatality Rate?
A case fatality rate is calculated by taking the total number of COVID-19 deaths divided by the total number of COVID-19 cases. A 30-day case fatality rate would only look at the total number of deaths and number of cases for the last 30 days. Both of these rates can be produced using the publicly downloadable datasets (Daily Case Information).

Can I recreate this with TDH publicly available data?
Not exactly. The public downloadable datasets-Daily Case Information presents COVID-19 deaths based on the day they were publicly reported, not the date of death. However, using the New_Deaths column one can create a similar visualization. The primary difference between the visualization using the public dataset method and the one in this report would be the trends seen in this report should align with trends seen roughly 2-5 days later with the public dataset visualization. Again, this would be because of the 2-5 day lag between date of death and public report date.

3. Positive Tests per 100,000 Persons by Public Health Region (Over the last 7 Days) (page 3)

The regional level map shows the number of new positive tests per 100,000 persons by public health region in the last 7 days. The arrows indicate trends (up or down) of the new positive tests rate compared to the week prior.

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How is the number of positive tests per 100,000 persons calculated in the map?
These rates are calculated by the taking the number of new positive tests for the region divided by the region's population. This is then multiplied by 100,000 to have the number per 100,000 persons.

Are the number of cases the same as the number of positive tests?
No, not necessarily. The number of positive tests is the total number of PCR-positive laboratory results that have been reported to TDH, while the number of cases are individual people who are either confirmed or probable COVID-19 cases. Individuals are only counted once in this number, no matter how many positive tests they might have had. Therefore, if an individual tested positive multiple times in a given week in the same area they would be counted multiple times in this map (but would only be counted once in the case counts).

Can I recreate this with TDH publicly available data?
Yes. The numbers required to create the calculation explained above are publicly available in the County New dataset but only at the county level. In order to recreate this visualization one will need to group the counties (and county populations) by their public health region (can be found at https://www.tn.gov/content/dam/tn/health/program-areas/oral-health/dental-regional-metro-areas.jpg).

 4. TN SARS-CoV-2 Variant Case Summary (page 4)

The table on page 4 summarizes the COVID-19 variant cases identified in TN in the last six months. To learn more about the variants and their classifications please see *https://www.cdc.gov/coronavirus/2019-ncov/variants/variant-info.html#Concern*.

What are the variant classifications and defintions?
Variants of Concern (VOC)(page 4)- a VOC is a variant for which there is evidence of an increase in transmissibility, more severe disease, significant reduction in neutralizationby antibodies generated during a previous infection or vaccination, reduced effectivness of treatments or vaccines, or diagnostic detection.

5. 7 Day Rolling Average Rate of COVID-19 Cases, Hospitalizations, and Deaths by Vaccination Status (page 6)

The visualizations on page 6 show the rate of COVID-19 cases, hospitalizations, and deaths per 100,000 persons based on if the individual was vaccinated or not.

What are the definitions for fully vaccinated and not fully vaccinated?
Fully Vaccinated: Completed a vaccination series (2 doses of Pfizer/Moderna or 1 dose of Janssen)

Not Fully Vaccinated: Not vaccinated or partially completed a vaccine series.

Can I recreate this with TDH publicly available data?
No, COVID-19 cases, hospitalizations, and deaths are not available in the public data sets by vaccination status.

6. 7 Day Running Average of New Cases in Metropolitan and Rural Public Health Regions (see page 7)

The visualizations on page 6 show the 7 day running average of new COVID-19 cases for all of the metropolitan and rural public health regions. These new case counts are based on their public report date and not specimen collection date. A 7 day moving average is the average of one data point and the six preceding data points. Looking at the moving average helps to understand trends and account for fluctuations in the data.

Can I recreate this with TDH publicly available data?
Yes, using the downloadable dataset- County New and the column New_Case, one is able to see the daily counts at the county level. These counts can added together to create the daily new case counts for each public health region. The 7 day average of new cases can be then calculated by totaling the daily new case counts (by region) for today and the previous 6 days and then dividing by 7.

7. COVID-19 Active Cluster Monitoring Table (page 8)

The table on page 8 displays the number of active COVID-19 clusters that are currently being monitored by region and cluster type.

What the definition of a COVID-19 Cluster?

A **confirmed COVID-19 cluster** is two (2) or more confirmed or probable cases of COVID-19 that are linked by the same location of exposure (e.g., workplace, long-term care facility, grocery store, etc.) or exposure event (e.g., work party, vacation, etc.) within a 14-day period that is not a household or school-associated exposure.

A **confirmed school-associated cluster** is three (3) or more confirmed or probable cases of COVID-19 within a specified core group (e.g., extracurricular activity, classroom, etc.) who were physically present during a core group activity in the 14 days prior to illness onset or positive test result. For additional information on school cluster definitions, please see Council of State and Territorial Epidemiologists (CSTE) Guidance.

Metro/Regional Health Department Abbreviations:

CHR	Chattanooga Hamilton County Health Department
ETR	East Tennessee Regional Health Department
JMR	Jackson Madison County Health Department
KKR	Knoxville Knox County Health Department
MCR	Mid Cumberland Regional Health Department
MSR	Memphis Shelby County Health Department
NDR	Nashville Davidson County Health Department
NER	Northeast Regional Health Department
SCR	South Central Regional Health Department
SER	Southeast Regional Health Department
SUL	Sullivan County Health Department
UCR	Upper Cumberland Regional Health Department
WTR	West Tennessee Regional Health Department

Can I recreate this with TDH publicly available data?
No, cluster information is not publicly available.

8. COVID-19 Confirmed Clusters by Week (page 8)

The visualization on page 8 shows the new clusters identified in Tennessee each week.

What the definition of a COVID-19 Cluster?

A **confirmed COVID-19 cluster** is two (2) or more confirmed or probable cases of COVID-19 that are linked by the same location of exposure (e.g., workplace, long-term care facility, grocery store, etc.) or exposure event (e.g., work party, vacation, etc.) within a 14-day period that is not a household or school-associated exposure.

A **confirmed school-associated cluster** is three (3) or more confirmed or probable cases of COVID-19 within a specified core group (e.g., extracurricular activity, classroom, etc.) who were physically present during a core group activity in the 14 days prior to illness onset or positive test result. For additional information on school cluster definitions, please see Council of State and Territorial Epidemiologists (CSTE) Guidance.

Can I recreate this with TDH publicly available data?
No, cluster information is not publicly available.

9. Syndromic Surveillance (Emergency Room) Data (page 9)

The visualizations on page 9 shows the percent of all emergency room visits in that are reporting both Cornavirus like Illness (CLI) and Influenza like Illness (ILI) in TN. This dashboard can also be found online here.

Can I recreate this with TDH publicly available data?
Yes and no. While ESSENCE data is not included in the publicly available datasets, the dashboard above does provide the weekly percent of ILI and CLI symptoms in the tool tips. Therefore, one could recreate the visualization if desired.

Can I recreate this with TDH publicly available data?
Yes and no, while lab turnaround time is not publicly reported, the lab testing volume can determined using the New_Tests column of the Daily Case Information public dataset.

10. HRTS-Reported Hospitalizations & Bed Capacity (page 10)

The visualizations on page 10 shows TN's hospital capacity through active hospitalizations, current bed utilization, and bed availability.

Can I recreate this with TDH publicly available data?
Yes, the downloadable dataset "Hospitalizations Data" on the Tennessee Department of Health website presents hospital floor and ICU bed availability by bed type, hospital report date, and adult vs. pediatric. The dataset is available at
https://www.tn.gov/health/cedep/ncov/data/downloadable-datasets.html.
To get the total for all ages, sum both age groups for either floor or ICU beds and divide by the Total using the following variables:
Pediatric_Floor_Beds_Available
Total_Pediatric_Floor_Beds
Pediatric_ICU_Beds_Available
Total_Pediatric_ICU_Beds
Adult_Floor_Beds_Available
Total_Adult_Floor_Beds
Adult_ICU_Beds_Available
Total_Adult_ICU_Beds

To access all the downloadable datasets mentioned in the technical notes, please see:
https://www.tn.gov/health/cedep/ncov/data/downloadable-datasets.html

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